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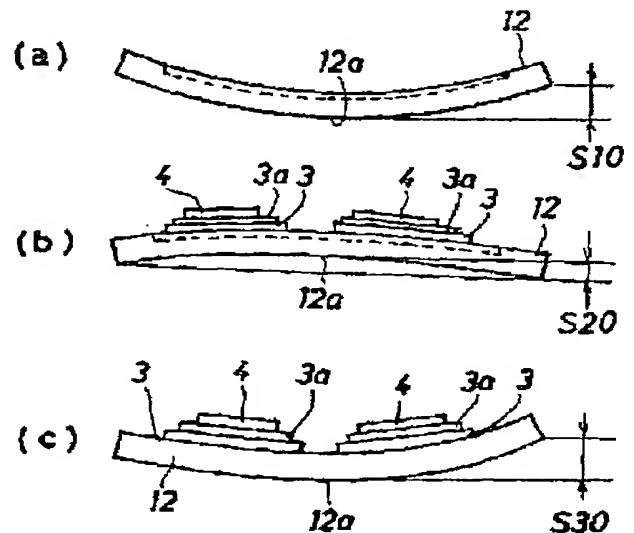
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TITLE : HEAD SINK AND COMPOSITE
SEMICONDUCTOR DEVICE USING IT



ABSTRACT : PROBLEM TO BE SOLVED: To reduce the final amount of warp in heat sinks, cracking in insulating substrates and variation in characteristics of pellets, by forming a hardened part on the top of a heat sink by press.

SOLUTION: The surface of a heat sink 12 with a soldered insulating substrate is wrought into a recessed shape to form a hardened part. The heat sink 12 with the hardened part formed thereon is formed into a projected shape so that the amount of warp at its central portion 12a is S10. When the insulating substrate 3 is soldered, the central portion 12a turns into a recessed shape with an amount of warp of S20. When the workpiece has been left for several days, the amount of warp in the central portion 12a is as slight an amount as S30, and the shape of the workpiece is stable. An insulating case is brought into contact with the periphery of the heat sink 12, a lid with external terminals led out is placed on the open end, and the inside of the insulating case is filled with resin. Thereby warp in, and the amount of variation after leaving of, the heat sink 12 can be reduced, and cracking in the insulating substrate 3 soldered to the heat sink 12 can be reduced; therefore, adverse effect on the characteristics of a composite semiconductor device can be prevented.

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